Claims

[c1] 1.A process for producing a fire resistant polycarbonate composition, comprising:
compounding an aqueous solution of a flame retardant salt with a polycarbonate composition to form the fire resistant polycarbonate composition.

[c2] 2.The process according to Claim 1, wherein the flame retardant salt is selected from the group consisting of sodium or potassium perfluoromethylbutane sulphonate; sodium or potassium perfluoromethane sulphonate; sodium or potassium perfluoroethane sulphonate; sodium or potassium perfluoropropane sulphonate; sodium or potassium perfluorohexane sulphonate; sodium or potassium perfluoroheptane sulphonate; sodium or potassium perfluoroctanesulphonate; sodium, potassium, or perfluorobutane sulfonate; and sodium or potassium diphenylsulfon-3-sulphonate; sodium or potassium dichlorobenzoate; sodium or potassium trichlorobenzoate; sodium or potassium tosylsulfphonate; and combinations comprising at least one of the foregoing salts.

[c3] 3.The process according to Claim 1, wherein the flame retardant salt is a sodium or potassium diphenylsulfon-3-sulphonate, or a combination comprising at least one of the foregoing salts.

[c4] 4.The process according to Claim 1, wherein the flame retardant salt is a sodium or potassium perfluorobutanesulphonate, or a combination comprising at least one of the foregoing salts.

[c5] 5.The process according to Claim 1, wherein the flame retardant salt is potassium diphenylsulfon-3-sulphonate.

[c6] 6.The process according to Claim 1, wherein the flame retardant salt is potassium perfluorobutanesulphonate.

[c7] 7.The process according to Claim 1, wherein the flame retardant composition has a formula:
$[Y'(SO_2)_z]_n Y''(SO_3M)_w$

wherein M is a metal which may be selected from the periodic table of either an alkali metal or an alkali earth metal, Y' and Y" may be either an aryl radical of 1-2 aromatic rings or an aliphatic radical of 1-6 carbon atoms and may be the same or different, z is an integer between 0 or 1, n is an integer between 0 to 5, and w is an integer less than 6, wherein Y' and Y" together must contain at least one aromatic ring to which the SO_3M group is attached.

[c8] 8.The process according to Claim 1, wherein the flame retardant comprises about 0.001 to about 2.0 parts per hundred of the fire resistant polycarbonate composition on a weight basis.

[c9] 9.The process according to Claim 1, wherein the flame retardant comprises about 0.01 to about 1.0 parts per hundred of the fire resistant polycarbonate composition.

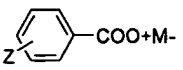
[c10] 10.The process according to Claim 1, wherein the flame retardant comprises about 0.03 to about 0.3 parts per hundred of the fire resistant polycarbonate composition.

[c11] 11.The process according to Claim 1, further comprising compounding additives selected from the group consisting of a filler, a reinforcing agent, a heat stabilizer, an antioxidant, a light stabilizer, a plasticizer, an antistatic agent, a mold releasing agent, an additional resin, a blowing agent, and combinations comprising at least one of the foregoing additives.

[c12] 12.The process according to Claim 1, wherein the flame retardant salt has a melting temperature greater than a compounding temperature for forming the fire resistant polycarbonate composition.

[c13] 13.The process according to Claim 1, wherein the aqueous solution comprises water and an alcohol.

[c14] 14.The process according to Claim 1, wherein the flame retardant composition has a formula:



wherein M is a metal which may be selected from the periodic table of either an

alkali metal or an alkali earth metal, and Z is a halogen and may be the same or different.

[c15] 15.The process according to Claim 1, wherein the flame retardant composition has a formula:

$CF_3(CF_2)_m(CF_2CF_2O)_nSO3^{-}M^{-}$

wherein M is a metal which may be selected from the periodic table of either an alkali metal or an alkali earth metal, m is an integer from 1 to 7, and n is an integer from 0 to 7, wherein the order of m and n are interchangeable.

[c16] 16.A process for reducing haze in a fire resistant polycarbonate composition, comprising:

compounding an aqueous solution of a flame retardant salt with a polycarbonate composition to form the fire resistant polycarbonate composition, wherein the haze is reduced compared to compounding the flame retardant salt in solid form with the polycarbonate composition.

[c17] 17.The process according to Claim 16, wherein the flame retardant is selected from the group consisting of sodium or potassium perfluoromethylbutane sulphonate; sodium or potassium perfluoromethane sulphonate; sodium or potassium perfluoroethane sulphonate; sodium or potassium perfluoropropane sulphonate; sodium or potassium perfluorohexane sulphonate; sodium or potassium perfluoroheptane sulphonate; sodium or potassium perfluoroctanesulphonate; sodium, potassium, or perfluorobutane sulfonate; and sodium or potassium diphenylsulfon-3-sulphonate; sodium or potassium dichlorobenzoate; sodium or potassium trichlorobenzoate; sodium or potassium tosylsulphonate; and combinations comprising at least one of the foregoing salts.

[c18] 18.The process according to Claim 16, wherein the aqueous solution comprises water and an alcohol.

[c19] 19.A process for reducing color in a fire resistant polycarbonate composition, comprising:

compounding an aqueous solution of a flame retardant salt with a

polycarbonate composition to form the fire resistant polycarbonate composition, wherein a yellowness index is reduced compared to compounding the flame retardant salt in solid form with the polycarbonate composition.

[c20] 20.The process according to Claim 19, wherein the flame retardant is selected from the group consisting of sodium or potassium perfluoromethylbutane sulphonate; sodium or potassium perfluoromethane sulphonate; sodium or potassium perfluoroethane sulphonate; sodium or potassium perfluoropropane sulphonate; sodium or potassium perfluorohexane sulphonate; sodium or potassium perfluoroheptane sulphonate; sodium or potassium perfluoroctanesulphonate; sodium, potassium, or perfluorobutane sulfonate; and sodium or potassium diphenylsulfon-3-sulphonate; sodium or potassium dichlorobenzoate; sodium or potassium trichlorobenzoate; sodium or potassium tosylsulphonate; and combinations comprising at least one of the foregoing salts.

[c21] 21.A process for reducing inclusions in an extruded sheet of a fire resistant polycarbonate composition, comprising:
compounding an aqueous solution of a flame retardant salt with a polycarbonate composition to form the fire resistant polycarbonate composition, wherein the number of inclusions is reduced compared to compounding the flame retardant salt in solid form with the polycarbonate composition.

[c22]

22.The process according to Claim 21, wherein the flame retardant is selected from the group consisting of sodium or potassium perfluoromethylbutane sulphonate; sodium or potassium perfluoromethane sulphonate; sodium or potassium perfluoroethane sulphonate; sodium or potassium perfluoropropane sulphonate; sodium or potassium perfluorohexane sulphonate; sodium or potassium perfluoroheptane sulphonate; sodium or potassium perfluoroctanesulphonate; sodium, potassium, or perfluorobutane sulfonate; and sodium or potassium diphenylsulfon-3-sulphonate; sodium or potassium dichlorobenzoate; sodium or potassium trichlorobenzoate; sodium or potassium tosylsulphonate; and combinations comprising at least one of the

foregoing salts.